



SEQUENCE LISTING

<110> Kandimalla, Ekambar R.
Zhao, Qiuyan
Yu, Dong
Agrawal, Sudhir

<120> Modulation of Immunostimulatory Activity of Immunostimulatory
Oligonucleotide Analogs By Positional Chemical Changes

<130> HYB-005US5 (1006.006)

<140> US 10/694,586

<141> 2003-10-27

<150> US 09/965,116

<151> 2001-09-26

<150> US 09/712,898

<151> 2000-11-15

<150> US 60/235,452

<151> 2000-09-26

<150> US 60/235,453

<151> 2000-09-26

<160> 112

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> synthesis of CpG-PS-oligos containing cytosine analogs

<400> 1

ctatctgacg ttctctgt

18

<210> 2

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> synthesis of CpG-PS-oligos containing cytosine analogs

<221> modified_base

<222> 9

<223> c = 5-hydroxydeoxycytidine

<400> 2

ctatctgacg ttctctgt

18

<210> 3

<211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthesis of CpG-PS-oligos containing cytosine analogs

<221> modified_base
 <222> 10
 <223> c = 5-hydroxydeoxycytidine

<400> 3
 ctatctgacc ttctctgt

18

<210> 4
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthesis of CpG-PS-oligos containing cytosine analogs

<221> modified_base
 <222> 9
 <223> c = N4-ethyldeoxycytidine

<400> 4
 ctatctgacg ttctctgt

18

<210> 5
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthesis of CpG-PS-oligos containing cytosine analogs

<221> modified_base
 <222> 10
 <223> c = N4-ethyldeoxycytidine

<400> 5
 ctatctgacc ttctctgt

18

<210> 6
 <211> 16
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthesis of end-blocked CpG-PS modified oligodeoxynucleotide
 phosphorothioate

<400> 6
 aaggtcgagc gttctc

16

<210> 7
 <211> 18

```

<212> DNA
<213> Artificial Sequence
<220>
<223> synthesis of end-blocked CpG-PS modified oligodeoxynucleotide
        phosphorothioate

<400> 7
atggcgcacg ctgggaga                                18

<210> 8
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> oligodeoxynucleotide phosphorothioate

<400> 8
cctactagcg ttctcatc                                18

<210> 9
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 10
<223> g = 1',2'-Dideoxyribose

<400> 9
cctactagcg ttctcatc                                18

<210> 10
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 8
<223> g = 1',2'-Dideoxyribose

<400> 10
cctactagcg ttctcatc                                18

<210> 11
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

```

<221> modified_base
<222> 7
<223> a = 1',2'-Dideoxyribose

<400> 11
cctactagcg ttctcatc

18

<210> 12
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 6
<223> t = 1',2'-Dideoxyribose

<400> 12
cctactagcg ttctcatc

18

<210> 13
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 5
<223> c = 1',2'-Dideoxyribose

<400> 13
cctactagcg ttctcatc

18

<210> 14
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 4
<223> a = 1',2'-Dideoxyribose

<400> 14
cctactagcg ttctcatc

18

<210> 15
<211> 18
<212> DNA
<213> Artificial Sequence

<220>

<223> modified oligodeoxynucleotide phosphorothioate
 <221> modified_base
 <222> 4
 <223> a = 1',2'-Dideoxyribose

<400> 15
 cctactagcc ttctcatc

18

<210> 16
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified oligodeoxynucleotide phosphorothioate
 <221> modified_base
 <222> 11
 <223> t = 1',2'-Dideoxyribose

<400> 16
 cctactagcg ttctcatc

18

<210> 17
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified oligodeoxynucleotide phosphorothioate
 <221> modified_base
 <222> 12
 <223> t = 1',2'-Dideoxyribose

<400> 17
 cctactagcg ttctcatc

18

<210> 18
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified oligodeoxynucleotide phosphorothioate
 <221> modified_base
 <222> 13
 <223> c = 1',2'-Dideoxyribose

<400> 18
 cctactagcg ttctcatc

18

<210> 19
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 14
 <223> t = 1',2'-Dideoxyribose

<400> 19
 cctactagcg ttctcatc

18

<210> 20
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 4, 5
 <223> ac = 1',2'-Dideoxyribose

<400> 20
 cctactagcg ttctcatc

18

<210> 21
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 1, 2
 <223> cc = 1',2'-Dideoxyribose

<400> 21
 cctactagcg ttctcatc

18

<210> 22
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 14, 15
 <223> tc = 1',2'-Dideoxyribose

<400> 22
 cctactagcg ttctcatc

18

<210> 23
 <211> 18
 <212> DNA

<213> Artificial Sequence

<220>

<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base

<222> 4, 7

<223> a at position 4 = 1',2'-Dideoxyribose

a at position 7 = 1',2'-Dideoxyribose

<400> 23

cctactagcg ttctcatc

18

<210> 24

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base

<222> 10

<223> g = C3-Linker

<400> 24

cctactagcg ttctcatc

18

<210> 25

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base

<222> 7

<223> a = C3-Linker

<400> 25

cctactagcg ttctcatc

18

<210> 26

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base

<222> 5

<223> c = C3-Linker

<400> 26

cctactagcg ttctcatc

18

```

<210> 27
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 4, 5
<223> a at position 4 = C3-Linker
      c at position 5 = C3-Linker

<400> 27
cctactagcg ttctcatc
18

<210> 28
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 1, 2
<223> cc at positions 1 & 2 = C3-Linker

<400> 28
cctactagcg ttctcatc
18

<210> 29
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 12
<223> t = C3-Linker

<400> 29
cctactagcg ttctcatc
18

<210> 30
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 14
<223> t = C3-Linker

```



```

<400> 30
cctactagcg ttctcatc                                     18

<210> 31
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 14, 15
<223> t at position 14. = C3-Linker
      c at position 15 = C3-Linker

<400> 31
cctactagcg ttctcatc                                     18

<210> 32
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 8
<223> a = C3-Linker

<400> 32
ctatctgacg ttctctgt                                     18

<210> 33
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 6
<223> t = C3-Linker

<400> 33
ctatctgacg ttctctgt                                     18

<210> 34
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base

```

<222> 4
<223> t = C3-Linker

<400> 34
ctatctgacg ttctctgt 18

<210> 35
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 4
<223> t = Spacer9

<400> 35
ctatctgacg ttctctgt 18

<210> 36
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 14
<223> t = Spacer9

<400> 36
ctatctgacg ttctctgt 18

<210> 37
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 4
<223> t = Spacer18

<400> 37
ctatctgacg ttctctgt 18

<210> 38
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

```

<221> modified_base
<222> 14
<223> t = Spacer18

<400> 38
ctatctgacg ttctctgt
18

<210> 39
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 4
<223> a = Spacer9

<400> 39
cctactagcg ttctcatc
18

<210> 40
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 14
<223> t = Spacer9

<400> 40
cctactagcg ttctcatc
18

<210> 41
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 4
<223> a = Spacer18

<400> 41
cctactagcg ttctcatc
18
<210> 42
<211> 18
<212> DNA
<213> Artificial Sequence

<220>

```

<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base

<222> 14

<223> t = Spacer18

<400> 42

cctactagcg ttctcatc

18

<210> 43

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base

<222> 8

<223> a = Amino-Linker

<400> 43

ctatctgacg ttctctgt

18

<210> 44

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base

<222> 7

<223> g = Amino-Linker

<400> 44

ctatctgacg ttctctgt

18

<210> 45

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base

<222> 4

<223> t = Amino-Linker

<400> 45

ctatctgacg ttctctgt

18

<210> 46

<211> 18

<212> DNA

<213> Artificial Sequence

```

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 12
<223> t = Amino-Linker

<400> 46
ctatctgacg ttctctgt                                     18

<210> 47
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 14
<223> t = Amino-Linker

<400> 47
ctatctgacg ttctctgt                                     18

<210> 48
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 10
<223> g = 3'-Deoxynucleoside

<400> 48
ctatctgacg ttctctgt                                     18

<210> 49
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 9
<223> c = 3'-Deoxynucleoside

<400> 49
ctatctgacg ttctctgt                                     18

<210> 50
<211> 18

```

<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 5
<223> c = 3'-Deoxynucleoside

<400> 50
ctatctgacg ttctctgt 18

<210> 51
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 15
<223> c = 3'-Deoxynucleoside

<400> 51
ctatctgacg ttctctgt 18

<210> 52
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 10
<223> g = 3'-Deoxynucleoside

<400> 52
cctactagcg ttctcatc 18

<210> 53
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 9
<223> c = 3'-Deoxynucleoside

<400> 53
cctactagcg ttctcatc 18

<210> 54
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 8
 <223> g = 3'-Deoxynucleoside

<400> 54
 cctactagcg ttctcatc 18

<210> 55
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 5
 <223> c = 3'-Deoxynucleoside

<400> 55
 cctactagcg ttctcatc 18

<210> 56
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 15
 <223> c = 3'-Deoxynucleoside

<400> 56
 cctactagcg ttctcatc 18

<210> 57
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 8
 <223> a = Methyl-phosphonate

<400> 57

ctatctgacg ttctctgt 18

<210> 58
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 7
 <223> g = Methyl-phosphonate

<400> 58
 ctatctgacg ttctctgt 18

<210> 59
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 6
 <223> t = Methyl-phosphonate

<400> 59
 ctatctgacg ttctctgt 18

<210> 60
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 5
 <223> c = Methyl-phosphonate

<400> 60
 ctatctgacg ttctctgt 18

<210> 61
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 4
 <223> t = Methyl-phosphonate

<400> 61
ctatctgacg ttctctgt 18

<210> 62
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 3, 4
<223> a at position 3 = Methyl-phosphonate
t at position 4 = Methyl-phosphonate

<400> 62
ctatctgacg ttctctgt 18

<210> 63
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 11
<223> t = Methyl-phosphonate

<400> 63
ctatctgacg ttctctgt 18

<210> 64
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 12
<223> t = Methyl-phosphonate

<400> 64
ctatctgacg ttctctgt 18

<210> 65
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base

<222> 13
 <223> c = Methyl-phosphonate

 <400> 65
 ctatctgacg ttctctgt 18

 <210> 66
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

 <221> modified_base
 <222> 14
 <223> t = Methyl-phosphonate

 <400> 66
 ctatctgacg ttctctgt 18

 <210> 67
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

 <221> modified_base
 <222> 15
 <223> c = Methyl-phosphonate

 <400> 67
 ctatctgacg ttctctgt 18

 <210> 68
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

 <221> modified_base
 <222> 15, 16
 <223> c at position 15 = Methyl-phosphonate
 t at position 16 = Methyl-phosphonate

 <400> 68
 ctatctgacg ttctctgt 18

 <210> 69
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>

```

<223> modified linkage of oligodeoxynucleotide phosphorothioate
<400> 69
tccatgacgt tcctgatgc 19

<210> 70
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 7
<223> a = 2'-O-Methylribonucleoside

<400> 70
tccatgacgt tcctgatgc 19

<210> 71
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 5
<223> t = 2'-O-Methylribonucleoside

<400> 71
tccatgacgt tcctgatgc 19

<210> 72
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 2, 3
<223> c at positions 2 & 3 =
      2'-O-Methoxyethylribonucleoside

<400> 72
tccatgacgg tcctgatgc 19

<210> 73
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

```

<400> 73
 gagaacgctc gacctt 16
 <210> 74
 <211> 32
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate
 <221> modified_base
 <222> 16
 <223> 3'-5' linkage
 <400> 74
 gagaacgctc gaccttgaga acgctcgacc tt 32
 <210> 75
 <211> 32
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate
 <221> modified_base
 <222> 16
 <223> 5'-5' linkage
 <400> 75
 ttccagctcg caagaggaga acgctcgacc tt 32
 <210> 76
 <211> 32
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate
 <221> modified_base
 <222> 16
 <223> 3'-3' linkage
 <400> 76
 gagaacgctc gaccttttcc agctcgcaag ag 32
 <210> 77
 <211> 18
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate
 <400> 77

tctcccagcg tgcgccat 18

<210> 78
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 16
 <223> 3'-5' linkage

<400> 78
 tcccagcgtg cgccattccc agcgtgcgcc at 32

<210> 79
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 16
 <223> 5'-5' linkage

<400> 79
 taccgctgc gacccttccc agcgtgcgcc at 32

<210> 80
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 16
 <223> 3'-3' linkage

<400> 80
 tcccagcgtg cgccattacc gcgtgcgacc ct 32

<210> 81
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 5
 <223> c = beta-L-Deoxynucleoside

<400> 81
ctatctgacg ttctctgt 18

<210> 82
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 14
<223> t = beta-L-Deoxynucleoside

<400> 82
ctatctgacg ttctctgt 18

<210> 83
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 4, 5
<223> t at position 4 = beta-L-Deoxynucleoside
c at position 5 = beta-L-Deoxynucleoside

<400> 83
ctatctgacg ttctctgt 18

<210> 84
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 14, 15
<223> t at position 14 = beta-L-Deoxynucleoside
c at position 15 = beta-L-Deoxynucleoside

<400> 84
ctatctgacg ttctctgt 18

<210> 85
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 9, 10
<223> c at position 9 = beta-L-Deoxynucleoside
g at position 10 = beta-L-Deoxynucleoside

<400> 85
ctatctgacg ttctctgt 18

<210> 86
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 7
<223> g = beta-L-Deoxynucleoside

<400> 86
ctatctgacg ttctctgt 18

<210> 87
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 12
<223> t = beta-L-Deoxynucleoside

<400> 87
ctatctgacg ttctctgt 18

<210> 88
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> (1)...(18)
<223> all nucleotides = beta-L-deoxynucleoside

<400> 88
ctatctgacg ttctctgt 18

<210> 89
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 5
<223> c = 2'-O-Propargyl-ribonucleoside

<400> 89
ctatctgacg ttctctgt 18

<210> 90
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 15
<223> c = 2'-O'Propargyl-ribonucleoside

<400> 90
ctatctgacg ttctctgt 18

<210> 91
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 4, 5
<223> a at position 4 = 1',2'-Dideoxyribose
c at position 5 = 1',2'-Dideoxyribose

<400> 91
cctactagcg ttctcatc 18

<210> 92
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 4, 5
<223> a at position 4 = C3-Linker
c at position 5 = C3-Linker

<400> 92
cctactagcg ttctcatc 18

<210> 93
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 4, 5
 <223> a at position 4 = 3'-methoxyribonucleoside
 c at position 5 = 3'-methoxyribonucleoside

<400> 93
 cctactagcg ttctcatc 18

<210> 94
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 4, 5, 12
 <223> a at position 4 = 1',2'-Dideoxyribose
 c at position 5 = 1',2'-Dideoxyribose
 t at position 12 = 2'-methoxyribonucleoside

<400> 94
 cctactagcg ttctcatc 18

<210> 95
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified linkage of oligodeoxynucleotide phosphorothioate

<400> 95
 cctactagcg ttctcatc 18

<210> 96
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
 <222> 10
 <223> g = 7-deazaguanine

<400> 96
 ctatctgacg ttctctgt 18

<210> 97
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 9
<223> g = 7-deazaguanine

<400> 97
ctatctgagc ttctctgt

18

<210> 98
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<400> 98
tctcccagcg tgcgccat

18

<210> 99
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 10,14
<223> g at positions 10 and 14 = 7-deazaguanine

<400> 99
tctcccagcg tgcgccat

18

<210> 100
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 5
<223> c = C3-Linker

<221> modified_base
<222> 10
<223> g = 7-deazaguanine

<400> 100
ctatctgacg ttctctgt 18

<210> 101
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 10
<223> g = 6-thioguanine

<400> 101
ctatctgacg ttctctgt 18

<210> 102
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 9
<223> g = 6-thioguanine

<400> 102
ctatctgagc ttctctgt 18

<210> 103
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 9
<223> c = 4-thiouridine

<400> 103
ctatctgacg ttctctgt 18

<210> 104
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 5

<223> c = 1,2-Dideoxyribose

<221> modified_base

<222> 9

<223> c = 4-thiouridine

<400> 104

ctatctgacg ttctctgt

18

<210> 105

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base

<222> 9

<223> c = Ara-C

<400> 105

ctatctgacg ttctctgt

18

<210> 106

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base

<222> 10

<223> c = Ara-C

<400> 106

ctactctgac cttctctgt

19

<210> 107

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base

<222> 9

<223> c = 1',2'-Dideoxyribose

<400> 107

ctatctgacg ttctctgt

18

<210> 108

<211> 18

<212> DNA

<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 8
<223> a = 1',2'-Dideoxyribose

<400> 108
ctatctgacg ttctctgt 18

<210> 109
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 6
<223> t = 1',2'-Dideoxyribose

<400> 109
ctatctgacg ttctctgt 18

<210> 110
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 4
<223> t = 1',2'-Dideoxyribose

<400> 110
ctatctgacg ttctctgt 18

<210> 111
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base
<222> 11
<223> t = 1',2'-Dideoxyribose

<400> 111
ctatctgacg ttctctgt 18

<210> 112
<211> 18
<212> DNA

<213> Artificial Sequence

<220>

<223> modified oligodeoxynucleotide phosphorothioate

<221> modified_base

<222> 13

<223> c = 1',2'-Dideoxyribose

<400> 112

ctatctgacg ttctctgt

18